

May 27, 2015

TO: Members of the MAG Standard Specifications and Details Committee

FROM: Tom Wilhite, City of Tempe, Chair

SUBJECT: MEETING NOTIFICATION AND TRANSMITTAL OF TENTATIVE AGENDA

Wednesday, June 3, 2015 at 1:30 p.m.  
MAG Office, Suite 200 (Second Floor), Ironwood Room  
302 North 1st Avenue, Phoenix

A meeting of the MAG Specifications and Details Committee has been scheduled for the time and place noted above. Members of the MAG Specifications and Details Committee may attend the meeting either in person, by videoconference or by telephone conference call. If you have any questions regarding the meeting, please contact Committee Chair Tom Wilhite at 480-350-2921 or Gordon Tyus, MAG staff at 602-254-6300.

In 1996, the Regional Council approved a simple majority quorum for all MAG advisory committees. If the MAG Specifications and Details Committee does not meet the quorum requirement, no action can be taken. Attendance at the meeting is strongly encouraged.

Pursuant to Title II of the Americans with Disabilities Act (ADA), MAG does not discriminate on the basis of disability in admissions to or participation in its public meetings. Persons with a disability may request a reasonable accommodation, such as a sign language interpreter, by contacting Gordon Tyus at the MAG office. Requests should be made as early as possible to allow time to arrange the accommodation.

It is requested (not required) that written comments on active cases be prepared in advance for distribution at the meeting.

**MAG Standard Specifications and Details Committee**  
**TENTATIVE AGENDA**  
**June 3, 2015**

**COMMITTEE ACTION REQUESTED**

1. Call to Order and Introductions
2. Call to the Audience  
An opportunity is provided to the public to address the MAG Specifications and Details Committee on items that are not on the agenda that are within the jurisdiction of MAG, or non-action agenda items that are on the agenda for discussion or information only. Citizens will be requested not to exceed a three minute time period for their comments. A total of 15 minutes will be provided for the Call to the Audience agenda item, unless the committee requests an exception to this limit. Please note that those wishing to comment on agenda items posted for action will be provided the opportunity at the time the item is heard.

2. Information.

3. Approval of May 6, 2015, Meeting Minutes

3. **Review and approve minutes of the May 6, 2015 meeting.**

**Carry Forward Cases from 2015**

4. Case 14-03: Updates to Guardrail Details  
Revisions to Section 415 and/or inclusion of MCDOT guardrail details.
5. Case 14-06: Revisions to Section 718 Preservative Seal for Asphalt Concrete  
Update specifications for current preservative seal products.
6. Case 14-12: Proposed Revisions to Sections 336, 321.10.3, 601.2.7 and Detail 200-1  
Add pavement removal criteria to prevent full depth pavement cuts from being located within a lane wheel path.
7. Case 14-17: Create New Section 322  
Provide specifications for Asphalt Stamping - materials and methods.

4. Information and discussion.  
Sponsor: Bob Herz, MCDOT
5. Information and discussion.  
Sponsor: Jeff Benedict, Asphalt Working Group
6. Information and discussion.  
Sponsor: Bob Herz, MCDOT  
*Updated*
7. Information and discussion.  
Sponsor: Brian Gallimore, Materials WG

**New Cases for 2015**

- |                                                                                                                                                                                                                                                                      |                                                                                      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| 8. <u>Case 15-01: Misc. Corrections</u><br>A. Add omitted text to Section 735.1.<br>Text was approved by Case 14-07 and merged into Case 13-15.<br>B. Revise "OA" to Quality Assurance and "OC" to Quality Control in Section 710.<br>C. Update notes in Detail 225. | 8. Information and discussion.<br>Sponsor: Bob Herz, MCDOT                           |
| 9. <u>Case 15-03: Revise Section 601.4.5 Trench Final Backfill Placement</u><br>Revise Section 601.4.5 trench final backfill placement requirements..                                                                                                                | 9. Information and discussion.<br>Sponsor: Bob Herz, MCDOT<br><i>Updated</i>         |
| 10. <u>Case 15-05: Proposed Revisions to Section 616</u><br>Update reclaimed water line construction specifications and create NEW Reclaimed Valve Box detail.                                                                                                       | 10. Information and discussion.<br>Sponsor: Warren White, Chandler                   |
| 11. <u>Case 15-07: Revisions to Section 342 Decorative Pavement Concrete Paving Stone or Brick and New Detail.</u><br>Revisions to Concrete Paver Standards for Non-Traveled Surfaces.                                                                               | 11. Information and discussion.<br>Sponsor: Warren White, Chandler<br><i>Updated</i> |
| 12. <u>Case 15-08: Revisions to Table 710-4</u><br>Clarify Table 710-4 to eliminate misinterpretation of Criteria 8.                                                                                                                                                 | 12. <b>Information, discussion and possible action.</b><br>Sponsor: Bob Herz, MCDOT  |
| 13. <u>Case 15-09: Revisions to Section 321</u><br>Miscellaneous revisions to Section 321:<br>PLACEMENT AND CONSTRUCTION OF ASPHALT CONCRETE PAVEMENT                                                                                                                | 13. Information and discussion.<br>Sponsor: Jeff Benedict, Asphalt Working Group     |
| 14. Other New or Proposed Cases                                                                                                                                                                                                                                      | 14. Information and discussion.                                                      |

**General Discussion**

- |                                            |                                                                                                                                                                                                                                                                                                        |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 15. <u>Working Group Reports</u>           | 15. Information and discussion.<br>Water/Sewer Chair: Jim Badowich<br>05/21/2015 Meeting<br><br>Asphalt Chair: Jeff Benedict<br>Materials Chair: Brian Gallimore<br>Concrete Chair: Jeff Hearne<br>05/28/2015 Meeting<br><br>Outside ROW Chair: Peter Kandaris<br><br>Curb Ramp WG Chair: Warren White |
| 16. <u>General Discussion</u>              | 16. Information and discussion.                                                                                                                                                                                                                                                                        |
| 17. <u>Request for Future Agenda Items</u> | 17. Information and discussion.                                                                                                                                                                                                                                                                        |

Adjournment

MEETING MINUTES FROM THE  
MARICOPA ASSOCIATION OF GOVERNMENTS  
STANDARD SPECIFICATIONS AND DETAILS COMMITTEE

May 6, 2015

Maricopa Association of Governments Office, Ironwood Room  
302 North First Avenue  
Phoenix, Arizona

AGENCY MEMBERS

Jim Badowich, Avondale, Vice Chair	Julie Christoph, Mesa
Craig Sharp, Buckeye	Dan Nissen, Peoria
Warren White, Chandler	Melody Moss, Phoenix (Streets)
Ruben Aguilar, El Mirage	* Jami Erickson, Phoenix (Water)
* Wayne Costa, Florence	* Rod Ramos, Scottsdale
* Tom Condit, Gilbert	Kristin Tytler, Surprise
Mark Ivanich, Glendale	Tom Wilhite, Tempe, Chair
* Tom Vassallo, Goodyear	Harvey Estrada, Valley Metro
Ed Williams, MCDOT (proxy)	Gregory Arrington, Youngtown

ADVISORY MEMBERS

Jeff Benedict, ARPA	Jeff Hearne, ARPA
* Arvid Veidmark, AZUCA	Peter Kandarlis, Independent
* Mike Sanders, AZUCA	* Paul R. Nebeker, Independent
Brian Gallimore, AGC	Jacob Rodriguez, SRP
Greg Groneberg, AGC	

MAG ADMINISTRATIVE STAFF

Gordon Tyus

\* Members not attending or represented by proxy.

GUESTS/VISITORS

Arturo Chavarria, Hanson Pipe  
David Mobley, City of Surprise

1. Call to Order

Chair Tom Wilhite called the meeting to order at 1:32 p.m.

Mr. Wilhite introduced Ed Williams who was filling in for Bob Herz, and welcomed Ruben Aguilar as an official member. Kristin Tytler introduced David Mobley, the new city inspector for Surprise. She said he may attend as a proxy for her.

2. Call to the Audience

There was no comment from the audience.

3. Approval of Minutes

The members reviewed the April 8, 2015 meeting minutes. Dan Nissen moved to accept the minutes as written. Warren White seconded the motion. A voice vote of all ayes and no nays was recorded.

**Carry Forward 2014 Cases**

4. Case 14-03: Updates to Guardrail Details.

*Make revisions to Section 415 and/or include guardrail details in MAG.* Ed Williams (filling in for Bob Herz) said MCDOT is currently developing the details.

5. Case 14-06: Revisions to Section 718 Preservative Seal for Asphalt Concrete.

*Update the specifications preservative seals.* Jeff Benedict said there currently was no change, but that the ASTM testing procedures were being reviewed to make sure they are equivalent to the AASHTO tests listed in the initial draft. He expected to present an updated version at the next meeting.

6. Case 14-12: Proposed Revisions to Sections 336, 321.10.3, 601.2.7 and Detail 200-1.

*Add pavement removal criteria to prevent full depth pavement cuts from being located within a lane wheel path and to prevent creation of narrow pavement edge strips.* Ed Williams said MCDOT is currently marking up Detail 200.

7. Case 14-17: Create New Section 322 - Asphalt Stamping.

*Provide specifications for materials and methods of Asphalt Stamping.* Greg Groneberg said they have incorporated comments from the last meeting. He met with representatives from Creative Paving Solutions and updated the draft based on their input. It also incorporated comments received from Bob Herz at the last working group meeting. Changes in the materials section included the use of a Marshall low-traffic mix for raised medians. The updates were also based on project specifications currently used by Scottsdale. Mr. Groneberg said the reference to the DecoCoat Polymer Systems clear coat sealant or equivalent was also added. He said this was the product everyone was currently using. Jeff Benedict asked members to provide comments before the next working group meeting.

Tom Wilhite asked what would be an equivalent for the clear coat sealant. He said you need to spell out what it is. Craig Sharp suggested listing the properties from the manufacturer, similar to Table 322-2. Melody Moss was concerned about a single supplier, noting that many federally-funded projects require at least three suppliers. Peter Kandarlis asked about the reference to the DecoCoat Polymer System under the materials section. He suggested removing the product name and just referencing the tables. Tom Wilhite said the agencies should be allowed to choose. Jim Badowich suggested adding the text, “with approval of agency.” Jeff Hearne commented that the spec does include a submission process. Julie Christoph asked if the table can be modified to show the minimum or maximum standards for specifications. Mr. Groneberg said he would continue work on the case at the next working group meeting.

**New Cases for 2015**

8. Case 15-01: Miscellaneous Corrections A-C.

*No new corrections were introduced.*

9. Case 15-03: Revise Section 601.4.5 Trench Final Backfill.

*Change backfill placement requirement from 2 feet maximum lifts to layers not exceeding eight inches in depth under certain conditions.* Jim Badowich said there was a discussion about the “sheepsfoot” at the water/sewer working group. He suggested adding “sheepsfoot pattern” to clarify the type of roller. Jeff Hearne googled sheepsfoot roller and got results consistent with the backhoe mounted roller they are wanting to reference. Mark Ivanich asked why the lifts can’t be set at just one thickness. Jim Badowich explained that the compaction wheels can get compaction with 2’ lifts whereas jumping jacks and other kinds of mechanical compaction can only compact about 12” max. He said these methods of compaction are needed around manholes because the wheel does not get close enough to get good compaction, and they have had problems with settling around circular manholes.

Tom Wilhite suggested that the “sheepsfoot” reference be added, and possibly vote on the case at the next meeting.

10. Case 15-05: Revise Section 616 Reclaimed Water Line Construction and Add New Reclaimed Valve Box Detail.

*Revise Section 616.2 Materials to reference appropriate sections and create new detail.*

Warren White discussed the revised details 270-1 and 270-2 sheet that was handed out at the meeting. Detail 270-1 added the word "ROUND" to the title. Detail 270-2 added the lines for where the square from transitions to a round base. It also fixed a dimension note and added finishing symbols to be consistent with Detail 270-1. Mr. White was not sure if the part actually was finished as shown, and wants to get more information from suppliers. Mark Ivanich asked about Note 2 where the width of the letters was still unspecified. Mr. White said he was not sure if it was even needed. Brian Gallimore suggested contacting Rita Chihanik at Neenah Foundry. She was helpful when updating the manhole covers a few years ago. Tom Wilhite had a question about the size of the tabs. Mr. White said he will continue to work on it.

11. Case 15-06: Delete or Section 744 ABS TRUSS PIPE AND FITTINGS.

Tom Wilhite said this case is on the agenda for action. Craig Sharp moved to delete Section 744. Harvey Estrada seconded the motion. Mr. Tyus asked to clarify that the committee was voting on Option 1 of the case to delete Section 744 entirely. The maker of the motion and the second agreed this was the intent. A roll call vote was taken. The motion passed: 12 yes, 0 no, 0 abstained, and 5 not present.

12. Case 15-07: Revisions to Concrete Paver Standards for Non-Traveled Surfaces.

*Make revisions to Detail 225 and Section 342.* Warren White said there was no update this month. He said he needs to add a detail for non-travel areas to the current Detail 225. He said he will have an update ready for the June meeting.

13. Case 15-08: Revisions to clarify Table 710-4 to Eliminate Misinterpretation of Criteria 8.

Ed Williams requested to vote on the case at the next meeting. Jeff Benedict said there was no actual change to the requirements; it was just reorganized to make the intent clearer.

14. Case 15-09: Revisions to Section 321 Placement and Construction of Asphalt Concrete Pavement.

Jeff Benedict introduced a new case that made several revisions to Section 321. The proposed revisions were outlined on the case memo that had Speedie and Associates on the top. He asked members to review the case and provide feedback. Ed Williams asked if Mr. Benedict received Mr. Herz's comments. He said that he did and noted that Mr. Herz was at the working group meeting where it was proposed. Mr. Wilhite asked Mr. Williams if he had those

comments available. Mr. Williams listed several proposed revisions that they had comments on. One area of disagreement was on revisions to Section 321.8.4 that eliminated the temperatures table and used 350 degrees F as the minimum. Jim Badowich asked “does that mean thickness doesn’t come into play?” Jeff Benedict said for the proposed revision, no. He asked members to review to case. Peter Kandaris said he would look for his notes on why the table was added. Jeff Benedict said the temperatures table is always a point of contention.

#### 15. New Cases

Mr. Wilhite asked the committee if there were any new cases. Jeff Benedict said they are working on a change to Section 717 Asphalt Rubber to clarify how to account for admixtures.

#### 16. Working Group Reports

Chair Wilhite asked for reports from the working group chairs.

##### a. **Water/Sewer Issues Working Group**

Jim Badowich said the group met Thursday, April 16, 2015 at 1:30 p.m. The first fifteen minutes was a presentation from a rep from Armorock on new Polymer Manhole Systems. Mr. Badowich said some agencies are experimenting with them. Advantages include no degradation of the material due to gases and no coating system is needed. Jim Badowich said they have been getting traction in other parts of the country. Warren White commented on the 50-year warranty offered by a third party. Mr. Badowich said since MAG adopted precast bases last year, he thought it made sense to look at other new system. They are planning to the polymer manholes in Avondale. Julie Christoph said Mesa is also trying them.

Mr. Badowich said the group also reviewed the trench compaction case as previously discussed, and the reclaimed water valve boxes. The rest of the meeting was reviewing the new Section 608: Horizontal Directional Drilling. He said they are getting the attention of utilities, and had three members from Southwest Gas in attendance. He said Arvid Veidmark is talking to other utility companies, and they plan to submit a case this year.

The next Water/Sewer meeting is planned for May 21, 2015 at 1:30 p.m. at the MAG office.

##### b. **Asphalt/Materials Working Groups**

Jeff Benedict said the group met on Thursday, April 23, 2015 at noon at the ARPA office. Other than the cases previously discussed, he said they were pushing Mr. Bechel to create a roadmap for possible changes to testing lime-treated ABC. Peter Kandaris said he got a call from Mr. Beckel, and said he would assist him. Mr. Groneberg said the procedures to avoid potential problems need to be developed.

Mr. Benedict said the next meeting is planned for May 28, 2015 at noon at the ARPA office. They plan to discuss the final changes to Section 718, discuss the proposed changes to Section 321 and review the Section 717 admixture issue.

Brian Gallimore said another issue they want to discuss is potential modifications to Section 321 for rehabilitation work. He said some of the specifications do not take into account repair work such as milling without subgrade reconstruction. He thinks there needs to be a discussion on what is fair and achievable for maintenance type of projects such as adding a 1" overlay to an existing street condition. What testing is fair when the base is not reworked?

**c. Concrete Working Group**

Jeff Hearne said they continued work on revisions to Section 725. He said Bob Herz brought comments from John Shi at MCDOT. He said the case is getting close and are planning to bring it to the committee.

He also has been working on draft wording for pervious concrete specs. He thought Mr. Herz's suggestion of moving it from the 600s to the 300s section made sense.

Mr. Hearne also asked if there was a desire for members to tour concrete production facilities. He said they would be happy to set-up such tours and open it up for agency staff. They often do tours for engineering students. Mr. Hearne said he could also arrange a tour of the cement manufacturing plant, but they would require a day-long commitment due to the distance. Many members indicated that they would be interested.

**d. Outside ROW Working Group**

Peter Kandararis said that he will have something ready to present at the next meeting.

**17. General Discussion**

Gordon Tyus said that he was notified by Bob Herz that the printed 2015 Specs and Details book still had Section 603 in it (pages 603-1 and 603-2). This section was combined into Section 601 and should have been deleted. This oversight was corrected on the online version of the specifications; however, if you previously purchased books, those pages should be deleted. Unfortunately, they ended up on the front and back of pages from other sections. Mr. Tyus recommended X-ing out those to pages and note to refer to Section 601. Tom Wilhite said he glued the pages together. Mr. Tyus said a replacement page would be included in the next update packet.

**18. Future Agenda Items:**

Tom Wilhite said that a low-impact development toolkit was being developed by Mesa and Gilbert. He asked if this could be used to help develop possible cases. Kristin Tytler said Surprise is looking into its potential, but thought project specs and details would be developed

on a case-by-case basis. Julie Christoph said the toolbox is used as a set of guidelines in Mesa. Originally it was developed to address issues such as storm water management. She said their council favors environmentally conscience development. Mark Ivanich said it was used mainly in private projects. Mr. Wilhite said maybe this was an issue that could be addressed by the Outside ROW group, although there are also uses in the right-of-way such as on-street parking and bio-swales. Mr. Ivanich thought it would be difficult to write specs, but does plan on using them as supplemental guidelines.

Warren White brought up the issue of sidewalk ramps. He said MAG needs to have dual ramps. Mark Ivanich said he needs a ramp like the old Detail 321 that had a tangent opposite the ramp so wheelchairs could come up to crossing signal buttons. Mr. Wilhite suggested forming a working group to focus on sidewalk ramps. Warren White, Harvey Estrada, Craig Sharp and Tom Wilhite volunteered to work on the issue. Dan Nissen said Brandon Forrey of Peoria has been working on them and should be included. It was thought that Bob Herz and Rod Ramos should also be contacted since they have contributed to previous cases.

19. Adjournment:

Seeing no further business the meeting was adjourned at 2:59 p.m.

## 2015 PROPOSED REVISIONS TO MAG SPECIFICATIONS AND DETAILS

(Updated information can be found on the website: <http://www.azmag.gov/Projects/Project.asp?CMSID=1055&CMSID2=7154> )

CASE	DESCRIPTION	PROPOSED BY	MEMBER	SUBMITTAL DATE Last Revision	VOTE DATE	VOTE	
	<b>CARRY FORWARD CASES FROM 2014</b>						
14-03	Case 14-03: Updates to Guardrail Details. Revisions to Section 415 and/or inclusion of MCDOT guardrail details.	MCDOT	Bob Herz	01/08/2014		0 0 0	Yes No Abstain
14-06	Case 14-06: Revisions to Section 718 Preservative Seal for Asphalt Concrete.	Asphalt WG	Jeff Benedict	02/05/2014 03/11/2015		0 0 0	Yes No Abstain
14-12	Case 14-12: Proposed revisions to Sections 336, 321.10.3, 601.2.7 and Detail 200. Add pavement removal criteria to prevent full depth pavement cuts from being located within a lane wheel path and to prevent creation of narrow pavement edge strips.	MCDOT	Bob Herz	06/04/2014 05/18/2015		0 0 0	Yes No Abstain
14-17	Case 14-17: Create New Section 322 Asphalt Stamping. Provide specifications for materials and methods.	Materials WG	Brian Gallimore	07/09/2014 04/21/2015		0 0 0	Yes No Abstain
	<b>NEW CASES FOR 2015</b>						
15-01	<b>Case 15-01: Miscellaneous Corrections:</b> A. Add omitted text to Section 735.1. Text was approved by Case 14-07 and merged into Case 13-15. Both cases were approved in 2014. B. Revise "OA" to Quality Assurance and "OC" to Quality Control in Section 710. C. Update notes in Detail 225.	MCDOT	Bob Herz	02/05/2014 03/04/2015		0 0 0	Yes No Abstain
15-02	Case 15-02: Adjust Fence Requirements to Reference ASTM F1043. Revise Section 772, Table 771-1 and Detail 145.	MCDOT	Bob Herz	01/07/2015	03/04/2015	15 0 1	Yes No Abstain
15-03	Case 15-03: Revise Section 601.4.5 trench final backfill placement requirements.	MCDOT	Bob Herz	02/04/2015 05/21/2015		0 0 0	Yes No Abstain

## 2015 PROPOSED REVISIONS TO MAG SPECIFICATIONS AND DETAILS

(Updated information can be found on the website: <http://www.azmag.gov/Projects/Project.asp?CMSID=1055&CMSID2=7154> )

CASE	DESCRIPTION	PROPOSED BY	MEMBER	SUBMITTAL DATE Last Revision	VOTE DATE	VOTE	
15-04	Case 15-04: Revise Section 602 Trenchless Installation of Steel Casing. Update ASTM references for casing material and add minimum casing wall thickness.	Water/Sewer WG	Arvid Veidmark	02/04/2015 02/24/2015	04/08/2015	13 0 0	Yes No Abstain
15-05	Case 15-05: Proposed Revisions to Section 616 Reclaimed Water Line Construction and NEW Reclaimed Valve Box detail.	Chandler	Warren White	03/04/2015		0 0 0	Yes No Abstain
15-06	Case 15-06: Delete 744 ABS TRUSS PIPE AND FITTINGS.	MCDOT	Bob Herz	03/04/2015	05/06/2015	12 0 0	Yes No Abstain
15-07	Case 15-07: Revisions to Concrete Paver Standards for Non-Traveled Surfaces.	Chandler	Warren White	03/04/2015 05/21/2015		0 0 0	Yes No Abstain
15-08	Case 15-08: Revisions to clarify Table 710-4 to eliminate misinterpretation of Criteria 8.	MCDOT	Bob Herz	04/08/2015	06/03/2015	0 0 0	Yes No Abstain
15-09	Case 15-09: Miscellaneous revisions to Section 321: PLACEMENT AND CONSTRUCTION OF ASPHALT CONCRETE PAVEMENT.	Asphalt WG	Jeff Benedict	04/22/2015		0 0 0	Yes No Abstain



**MARICOPA COUNTY**  
*Department of Transportation*

**MEMORANDUM**

**Date:** June 4, 2014 Revised 2015-05-18  
**To:** MAG Specifications and Details Committee  
**From:** Robert Herz, MCDOT Representative  
**Subject:** Revisions to Sections 336, 321.10.3, 601.2.7, 601.2.10, and **Case 14-12**  
Detail 200-1

**PURPOSE:** Add pavement removal criteria to prevent full depth pavement cuts from being located within a lane wheel path and to prevent creation of narrow pavement edge strips.

**REVISIONS:**

1. Identified location restrictions for full depth longitudinal joints for asphalt pavement widening and for asphalt pavement trench repairs.
2. Defined vertically offset joint as an alternative for full depth sawed joint.
3. Added pavement removal requirements when replacing existing curb or gutter.
4. Added requirement for asphalt pavement edge replacement to have a safety edge or thickened edge constructed per Detail 201 except when the asphalt edge abuts a concrete curb or gutter.
5. Trenching into portland cement concrete pavement, sidewalk, or other concrete flatwork shall require complete joint to joint replacement of damaged panels. Type C Trench Repair in Detail 200-1 is to be deleted.
6. Adjusted the measurement for trench surface replacement to include extra area required to eliminate narrow edge remnants and to move full depth asphalt cuts outside of defined lane wheel paths.

## SECTION 336

## PAVEMENT MATCHING AND SURFACING REPLACEMENT

## 336.1 DESCRIPTION:

This specification identifies requirements for removing and replacing or widening ~~Street and alley~~ pavement and replacing other surfacings within ~~the Contracting Agency's public rights-of-way, removed by construction activities or to be widened or matched in connection with the improvement of Public Works, shall be placed as shown on the plans and applicable standard details, in accordance with this specification and/or the special provisions.~~

Asphalt concrete roadway ~~pavement replacement~~ trench repairs shall be constructed in accordance with Type A, B, or T-Top Trench Repair of Standard Detail 200-1 and as indicated on the plans or in the special provisions.

Trench repairs for unpaved alleys, roadways, and designated future roadway prism shall be constructed in accordance with Type E Trench Repair of Standard Detail 200-1.

Trenching into ~~P~~portland cement concrete pavement, sidewalk, or other concrete flatwork shall require complete joint to joint replacement of damaged panels unless an alternative repair is required by contract documents or is authorized in writing by the Engineer. ~~replacement shall be in accordance with Type C of the Standard Detail 200-1 and as required by Section 324.~~

~~All other s~~Surface replacement in the right-of-way ~~but~~ not in paved roadways shall be constructed in accordance with Type D Trench Repair of Standard Detail 200-1 and as indicated on the plans ~~or in the special provisions.~~

Temporary pavement replacement shall be constructed as required herein.

~~Asphalt p~~Pavements to be matched by construction of new pavements adjacent to or at the ends of a project shall be milled or saw cut in accordance with these specifications and where shown on the plans.

Pavement and surfacing replacement within ADOT rights-of-way shall be constructed in accordance with their permits and/or specification requirements.

## 336.2 MATERIALS AND CONSTRUCTION METHODS:

Materials and construction methods used in the replacement of pavement and surfacing shall conform to the requirements of all applicable standard details and specifications, latest revisions.

**336.2.1 Pavement Widening or Extensions:** Existing pavements which are to be matched by pavement widening or pavement extension shall be trimmed to a neat true line with straight vertical edges free from irregularities with a device specifically designed for this purpose. ~~The minimum depth of cut shall be 1 ½ inches or D/4, whichever is greater.~~

~~The e~~Existing asphalt pavement shall be cut and trimmed after placement of required ABC and just prior to placement of asphalt concrete for pavement widening or extension, and the trimmed edges shall ~~be have painted with a light coating of asphalt cement or emulsified asphalt tack coat applied to the vertical edges~~ immediately prior to constructing the new abutting asphalt concrete pavements. No extra payment shall be provided for these items and all costs incurred in performing this work shall be incidental to the pavement widening or pavement extension.

The location of longitudinal match points shall depend on the type of asphalt joint being constructed (full depth or offset) and the location of the pavement lane striping to be in place at completion of construction. Full depth longitudinal joints shall be located within one foot of a post construction lane line stripe or within the center two feet of a post construction travel lane. The location restriction for full depth longitudinal joints does not apply to multi-layer pavements when a vertically offset joint with the existing pavement is constructed. An acceptable offset joint shall have at least a six-inch horizontal offset with the nearest joint in the underlying asphalt layer. An offset joint may be obtained by edge milling to a depth that meets the minimum lift thickness identified in section 710 for the asphalt surface course to be placed.

The exact point of matching, termination, and overlay may be adjusted in the field, ~~if necessary,~~ by the Engineer or designated representative.

## SECTION 336

**336.2.2 Pavement to be Removed:** Existing asphalt pavement to be removed for trenches or for other underground construction or repairs shall be cut by a device capable of making a neat, straight and smooth cut without damaging adjacent pavement that is not to be removed. The Engineer's decision as to the acceptability of the cutting device and manner of operation shall be final.

In lieu of cutting trenches across driveways, curbs and gutters, sidewalks, alley entrances, and other types of pavements, the Contractor may, when approved by the Engineer, elect to tunnel or bore under such structures and pavements.

When installations are within the street pavement and essentially parallel to the center-line of the street, the Contractor, with approval of the Engineer, may elect to bore or tunnel all or a portion of the installation. In such installations, the seal coat requirements, as discussed in Section 336.2.4, will be modified as follows:

(A) If the pavement cuts (bore pits, recovery pits, etc.) are 300 feet or more apart, the bore or tunneled distance will not be considered as part of the open trench and the seal coat ~~may~~ will not be required.

(B) If the pavement cuts (bore pits, recovery pits, etc.) are less than 300 feet apart, the distance between the cuts will be considered the same as a trench cut and the distance will be added to any trench cut distances.

Pavement removal limits when replacing existing curb or gutter shall be as follows. For curb or gutter replacement adjacent to a designated bike lane or paved shoulder area wider than three feet, the asphalt pavement removal and replacement shall extend to within 6 inches of the travel lane edge stripe. For curb or gutter replacement when no travel lane edge stripe exists, the asphalt pavement match point shall extend two feet or less from the pavement edge into the vehicle travel lane.

Asphalt pavement damaged by the Contractor during trenching or other activities shall be removed after adjacent aggregate base has been placed and compacted and prior to placement of the adjacent permanent pavement. The replacement of the damaged asphalt pavement shall occur at the same time as the permanent pavement replacement is constructed.

**336.2.3 Temporary Pavement Replacement:** Temporary pavement replacement, as required in Section 601, may be with cold-mix asphalt concrete, with a minimum thickness of 2 inches, using aggregate grading in accordance with Marshall mix design of Section 710. Permanent pavement replacement shall replace temporary repairs within 5 working days after completion of temporary work.

Temporary pavement replacement shall be used in lieu of immediate placement of single course permanent replacement or the first course of two course pavement replacement only on transverse lines such as spur connections to inlets, driveways, road crossings, etc., when required by the Engineer, by utilities or others who subcontract their permanent pavement replacement, under special prior arrangement; or for emergency conditions where it may be required by the Engineer. Temporary pavement replacement shall be placed during the same shift in which the backfill to be covered is completed.

Rolling of the temporary pavement replacement shall conform to the following:

(A) Initial or breakdown rolling shall be followed by rolling with a pneumatic-tired roller. Final compaction and finish rolling shall be done by means of a tandem power roller.

(B) On small areas or where equipment specified above is not available or is impractical, the Engineer will approve the use of small vibrating rollers or vibrating plate type compactors provided comparable compaction is obtained.

The surface of the temporary pavement shall be finished ~~off~~ flush with the adjacent pavement.

**336.2.4 Permanent Pavement Replacement and Adjustments:**

**336.2.4.1 Permanent Asphalt Pavement Replacement:** All asphalt pavement replacement shall match gradation and thickness of the existing pavement. ~~Immediately preceding the placement of permanent pavement the density of the base material shall comply with requirements of Table 601-2. Asphalt concrete pavement replacement shall be compacted to the same density specified for asphalt concrete pavements in Section 321. The compacted thickness of all courses shall conform to the recommended thicknesses requirements of Table 710-1.~~

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Unless otherwise noted, **asphalt concrete** pavement replacement shall comply with the following:

(A) Single course pavement replacement shall consist of a 1/2" or 3/4" mix in accordance with Section 710.

(B) The base course(s) of a multi-course pavement replacement shall consist of a 3/4" mix in accordance with Section 710.

(C) The surface course of a multi-course pavement replacement shall consist of a 3/8" or 1/2" mix in accordance with Section 710 to match the existing surface.

(D) Where the base course is to be placed with non-compactive equipment, it shall be immediately rolled with a pneumatic-tired roller.

(E) **Pavement replacement over trenches** ~~where the pavement replacement width trench is 6 feet or more in width~~, all courses shall be placed with self-propelled spreading and compacting equipment. When the **pavement replacement width trench** is from 6 to 8 feet ~~in width~~, self-propelled spreading and compacting equipment shall not be wider than 8 feet.

(F) Placement of the surface course is to be by means which will result in a surface flush with the existing pavement. The pavement replacement surface shall not vary more than 1/4 inch from the lower edge of a straightedge placed across the replacement pavement surface between edges of the existing matched surfaces. When the pavement replacement includes replacement of the roadway crown, the surface smoothness shall comply with requirements of Section 321.

(G) **Pavement replacement extending to the edge of asphalt pavement not abutting concrete shall have a safety edge or thickened edge constructed per Detail 201 as deemed appropriate by the local jurisdiction.**

~~Laying a single course or the base course(s) of the asphalt concrete pavement replacement shall never be more than 600 feet behind the ABC placement for the pavement replacement.~~

~~The trench must be compacted to its required density, and required ABC must be in place and compacted prior to the placement of the asphalt concrete.~~

For **trench cuts, pavement widening, or other partial pavement installations** greater than 300 feet in length the entire area shall ~~then~~ be slurry seal coated in accordance with Section 332 or as otherwise specified. ~~The~~ seal coat shall extend from the edge of pavement or lip of gutter to the street centerline except that on residential streets less than 36 feet face to face of curb ~~or and~~ where the pavement patch straddles the centerline, the entire width of street shall be seal coated.

In lieu of placing the seal coat as required previously, and with approval of the ~~Contracting Agency~~ **local jurisdiction**, the Contractor may deposit with the ~~Street Maintenance Department Contracting Agency~~ for credit ~~to the Street Maintenance Department~~, a negotiated agreed upon amount. The Street Maintenance Department will incorporate this work into their street maintenance program.

**336.2.4.2 Adjustments:** When new or existing manholes, valves, survey monuments, clean outs, etc. fall within the limits of the permanent pavement replacement as discussed in this Section, the Contractor shall be responsible for adjusting the various items to the new pavement surface ~~or as directed by the Engineer. This will include but not be limited to slurry and chip seals.~~

The Contractor ~~will~~ **shall** coordinate with the Engineer and with representatives of the various utilities regarding the adjustment and inspection of the work. The Contractor shall be responsible for obtaining and complying with all specifications, special requirements, ~~and details, etc. for of the adjustment of utility company facilities regarding the adjustments.~~ When adjusting the Agency's utilities, survey monuments, etc., the adjustment will comply with these specifications and details.

The work will be done in compliance with OSHA standards and regulations regarding confined space entry. The Contractor shall remove all material attached to the lids and/or covers including that of prior work. The method of removal shall be approved by the Engineer and/or the Utility Representative.

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**336.3 TYPES AND LOCATIONS OF ~~PAVEMENT AND TRENCH SURFACEING~~ REPLACEMENT:**

~~The trench backfill shall must be in place and compacted to the density its required in Table 601-2 density, and required ABC must be in place and compacted prior to the placement of the asphalt concrete structural section or other surfacing.~~

~~Laying a single course or the base course(s) of the asphalt concrete pavement replacement for trenches shall never be more than 1320 600 feet behind the ABC placement for the pavement replacement.~~

~~Normally, the type of pavement surface replacement and backfill required for trenches shall will be as noted on the plans or special provisions specified in other portions of the contract documents and construction will shall be in accordance with Detail 200-1 and 200-2.- If a trench repair type is not noted on the plans or specified in the special provisions, the following criteria will govern:~~

~~Type A trench repair will be used for utilized on all asphalt concrete paved streets where the excavation is essentially longitudinal or parallel to traffic. Full depth longitudinal joints shall not be located within forty-eight inches (48") of an asphalt pavement edge or within a lane wheel path. The lane wheel path for a traffic lane is the entire lane width except the area within one foot of a traffic lane line stripe and except the center two feet of the lane. The lane wheel path for a designated bike lane is the entire lane width except the area within six inches (6") of a bike lane edge stripe. When the surface match point is located within 48" of an asphalt pavement edge, all asphalt surfacing shall be removed to the asphalt edge, the replacement surfacing shall extend to the asphalt edge. The traffic lane wheel path restrictions for full depth longitudinal joints do not apply for offset joints that provide at least a six-inch horizontal offset between the surface course joint and the joint in the underlying asphalt layer. The depth of the asphalt surface course shall be equal to or greater than the minimum thickness recommended in Table 710-1.~~

~~T-Top trench repair will be utilized on all streets used where the excavation is essentially transverse or not parallel to traffic, including trenches that go through an intersection.~~

~~Type B trench repair may shall only be used to repair transverse trenches if when specified by the local jurisdiction Agency.~~

~~Type C trench repair will be used to repair existing Portland cement concrete pavement.~~

~~Type D trench repair will be utilized used to repair surfaces other than asphalt concrete or P portland cement concrete pavement. When a trench cut is in aggregate surfaced area, t The surfaceing replacement shall be of a like type and depth as the existing material, compacted to the densities required in Section 601. It may also be used when the condition of the existing pavement does not justify construction of Type A, Type B or T-Top trench repair. Prior written approval of the Engineer is required for this condition.~~

~~Where a longitudinal trench is partly in pavement, the pavement shall be replaced to a neat straight line located at the outside limits edge of the existing pavement.; -on a straight line~~

~~Where asphalt pavement replacement extends to an uncurbed asphalt edge, the agency designated edge treatment, as indicated on the plans shown in Detail 201- (Type A, Type B, or Safety Edge) shall be installed. Measurements for payment shall be from the inner limit of pay width allowed below, to the outside edge of the existing pavement as defined herein.~~

~~Where no part of a trench is in a landscaped or graded area outside of pavement, no special surfaceing treatment is required except replacement will only be as indicated by plans or specifications specified where existing surfacing materials have been removed.~~

~~When a trench cut is in aggregate surfaced area, the surfacing replacement shall be of a like type and depth as the existing material, compacted to the densities required in Section 601.~~

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**336.4 MEASUREMENT:**

Measurement for ~~payment and surfacing~~ replacement shall be by the square yard, based ~~up~~ on actual field measurement -of the area covered except as noted below.

(A) In computing pay quantities for ~~surface~~ replacement of Types B ~~and~~ ~~E~~ trench repair, the default pay widths will be based on the ~~actual field measured width; however the boundaries of the measurement will not extend further than ½ the distance, either side, from the centerline of the pipe as depicted on~~ dimension calculated from Table 601-1, for the "Maximum Width At Top Of Pipe Greater Than O.D. Of Barrel". The pay width will be adjusted to the minimum required field width when relocation of the pavement match point is due to the remnant requirement or when pavements less than 4" thick are required to be adjusted outside of a wheel path.

(B) In computing pay quantities for ~~surface~~ replacement of a Types T-Top or, Type A, ~~C and D~~ trench repair, ~~pay~~ the default widths will be based on the dimension calculated from ~~actual field measured width, however the boundaries of the measurement will not extend further than ½ the distance plus 12 inches, either side, from the centerline of the pipe as depicted on~~ Table 601-1, for the "Maximum Width At Top Of Pipe Greater Than O.D. Of Barrel" plus 24 inches. The pay width will be adjusted to the minimum required field width when relocation of the pavement match point is due to the remnant requirement or when pavements less than 4" thick are required to be adjusted outside of a wheel path. In all cases, the minimum pay width for ~~replacement Types~~ T-Top, or Type A ~~and D~~ surface replacement shall be 48 inches.

(C) In computing pay quantities of surface replacement for Type D trench repair, pay widths will be based on the dimension calculated from Table 601-1 for the "Maximum Width At Top Of Pipe Greater Than O.D. Of Barrel". In all cases, the minimum pay width for Type D surface replacement shall be 48 inches.

(~~C~~D) Where a longitudinal trench is partly in asphalt pavement, ~~computations of~~ pay quantities shall ~~be based on~~ not exceed ~~the~~ actual pavement replacement quantities. The measurement shall be the area as allowed for the respective Type A or Type B trench repair limited to that portion located within the existing pavement. ~~limitations specified above.~~ The minimum 48 inch pay width for the Type A pavement replacement does not apply when the trench is partially in pavement.

(~~D~~E) The length of pavement and surfacing replacement shall be measured through any manhole, valve box, or other structure constructed in the pipe line, and any pavement or surface replacement and/or seal treatment in excess of the ~~above pay~~ trench ~~repair~~ widths shall be considered and included in the bid item for such structure.

(~~E~~F) Any pavement replacement in excess of the specified pay widths necessitated by the installation of valves, tapping sleeves and valves, valve by-passes, and concrete thrust blocks shall be included in the bid price for these items.

(~~F~~G) ~~When special provisions allow deviations from the trench widths specified in Section 601, the above allowed pay widths for pavement replacement may be altered where so specified.~~

(~~G~~) Measurement of pavement and surfacing replacement shall be made along the finished surface ~~excluding any extra replacement required due to Contractor caused damage. -of the ground to the nearest foot, and~~ The measured quantity shall be computed to the nearest square yard.

(H) No separate measurement or payment will be made for the required construction of a Detail 201 edge treatment.

**336.5 PAYMENT:**

Direct payment for pavement or ~~other~~ ~~surfacing~~ replacement will be made for replacement over all pipe trench cuts except as otherwise ~~allowed~~ ~~noted~~ in the special provisions. Payment for ~~surface~~ replacements over other work shall be included in the cost of constructing that work, ~~in accordance with the applicable standard details and specifications.~~

Payment for temporary pavement replacement shall be included in the cost of the pipe.

Payment for pavement replacement shall include the replacement cost of any existing pavement markings that have been ~~degraded~~, obscured, obliterated or removed ~~by underground trench construction or repairs.~~

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When a Contractor has the option of jacking and/or boring or open cut construction, and elects to construct a pipeline by the jacking and/or boring method, ~~he~~ the Contractor will be paid for the replacement of such items of work as pavement, curb and gutter, sidewalk, driveway, and alley entrances, as allowed for open cut construction.

**- End of Section -**

## SECTION 336

## PAVEMENT MATCHING AND SURFACING REPLACEMENT

**336.1 DESCRIPTION:**

This specification identifies requirements for removing and replacing or widening pavement and replacing other surfacings within public rights-of-way.

Asphalt concrete roadway trench repairs shall be constructed in accordance with Type A, B, or T-Top Trench Repair of Standard Detail 200-1 and as indicated on the plans or in the special provisions.

Trench repairs for unpaved alleys, roadways, and designated future roadway prism shall be constructed in accordance with Type E Trench Repair of Standard Detail 200-1.

Trenching into portland cement concrete pavement, sidewalk, or other concrete flatwork shall require complete joint to joint replacement of damaged panels unless an alternative repair is required by contract documents or is authorized in writing by the Engineer.

Surface replacement in the right-of-way not in paved roadways shall be constructed in accordance with Type D Trench Repair of Standard Detail 200-1 and as indicated on the plans or in the special provisions.

Temporary pavement replacement shall be constructed as required herein.

Asphalt pavements to be matched by construction of new pavements adjacent to or at the ends of a project shall be milled or saw cut in accordance with these specifications and where shown on the plans.

Pavement and surfacing replacement within ADOT rights-of-way shall be constructed in accordance with their permits and/or specification requirements.

**336.2 MATERIALS AND CONSTRUCTION METHODS:**

Materials and construction methods used in the replacement of pavement and surfacing shall conform to the requirements of all applicable standard details and specifications, latest revisions.

**336.2.1 Pavement Widening or Extensions:** Existing pavements which are to be matched by pavement widening or pavement extension shall be trimmed to a neat true line with straight vertical edges free from irregularities with a device specifically designed for this purpose.

Existing asphalt pavement shall be cut and trimmed after placement of required ABC and just prior to placement of asphalt concrete for pavement widening or extension, and the trimmed edges shall have tack coat applied to the vertical edges immediately prior to constructing the new abutting asphalt concrete pavement. No extra payment shall be provided for these items and all costs incurred in performing this work shall be incidental to the pavement widening or extension.

The location of longitudinal match points shall depend on the type of asphalt joint being constructed (full depth or offset) and the location of the pavement lane striping to be in place at completion of construction. Full depth longitudinal joints shall be located within one foot of a post construction lane line stripe or within the center two feet of a post construction travel lane. The location restriction for full depth longitudinal joints does not apply to multi-layer pavements when a vertically offset joint with the existing pavement is constructed. An acceptable offset joint shall have at least a six-inch horizontal offset with the nearest joint in the underlying asphalt layer. An offset joint may be obtained by edge milling to a depth that meets the minimum lift thickness identified in section 710 for the asphalt surface course to be placed.

The exact point of matching, termination, and overlay may be adjusted in the field by the Engineer or designated representative.

**336.2.2 Pavement to be Removed:** Existing asphalt pavement to be removed for trenches or for other underground construction or repairs shall be cut by a device capable of making a neat, straight and smooth cut without damaging adjacent pavement that is not to be removed. The Engineer's decision as to the acceptability of the cutting device and manner of operation shall be final.

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In lieu of cutting trenches across driveways, curbs and gutters, sidewalks, alley entrances, and other types of pavements, the Contractor may, when approved by the Engineer, elect to tunnel or bore under such structures and pavements.

When installations are within the street pavement and essentially parallel to the centerline of the street, the Contractor, with approval of the Engineer, may elect to bore or tunnel all or a portion of the installation. In such installations, the seal coat requirements, as discussed in Section 336.2.4, will be modified as follows:

(A) If the pavement cuts (bore pits, recovery pits, etc.) are 300 feet or more apart, the bore or tunneled distance will not be considered as part of the open trench and the seal coat will not be required.

(B) If the pavement cuts (bore pits, recovery pits, etc.) are less than 300 feet apart, the distance between the cuts will be considered the same as a trench cut and the distance will be added to any trench cut distances.

Pavement removal limits when replacing existing curb or gutter shall be as follows. For curb or gutter replacement adjacent to a designated bike lane or paved shoulder area wider than three feet, the asphalt pavement removal and replacement shall extend to within 6 inches of the travel lane edge stripe. For curb or gutter replacement when no travel lane edge stripe exists, the asphalt pavement match point shall extend two feet or less from the pavement edge into the vehicle travel lane.

Asphalt pavement damaged by the Contractor during trenching or other activities shall be removed after adjacent aggregate base has been placed and compacted and prior to placement of the adjacent permanent pavement. The replacement of the damage asphalt pavement shall occur at the same time as the permanent pavement replacement is constructed.

**336.2.3 Temporary Pavement Replacement:** Temporary pavement replacement, as required in Section 601, may be with cold-mix asphalt concrete, with a minimum thickness of 2 inches, using aggregate grading in accordance with Marshall mix design of Section 710. Permanent pavement replacement shall replace temporary repairs within 5 working days after completion of temporary work.

Temporary pavement replacement shall be used in lieu of immediate placement of single course permanent replacement or the first course of two course pavement replacement only on transverse lines such as spur connections to inlets, driveways, road crossings, etc., when required by the Engineer, by utilities or others who subcontract their permanent pavement replacement, under special prior arrangement; or for emergency conditions where it may be required by the Engineer. Temporary pavement replacement shall be placed during the same shift in which the backfill to be covered is completed.

Rolling of the temporary pavement replacement shall conform to the following:

(A) Initial or breakdown rolling shall be followed by rolling with a pneumatic-tired roller. Final compaction and finish rolling shall be done by means of a tandem power roller.

(B) On small areas or where equipment specified above is not available or is impractical, the Engineer will approve the use of small vibrating rollers or vibrating plate type compactors provided comparable compaction is obtained.

The surface of the temporary pavement shall be finished flush with the adjacent pavement.

**336.2.4 Permanent Pavement Replacement and Adjustments:**

**336.2.4.1 Permanent Asphalt Pavement Replacement:** All asphalt pavement replacement shall match gradation and thickness of the existing pavement. Immediately preceding the placement of permanent pavement the density of the base material shall comply with requirements of Table 601-2. Asphalt concrete pavement shall be compacted to the same density specified in Section 321. The compacted thickness of all courses shall conform to the recommended thicknesses of Table 710-1.

Unless otherwise noted, asphalt concrete pavement replacement shall comply with the following:

(A) Single course pavement replacement shall consist of a 1/2" or 3/4" mix in accordance with Section 710.

(B) The base course(s) of a multi-course pavement replacement shall consist of a 3/4" mix in accordance with Section 710.

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(C) The surface course of a multi-course pavement replacement shall consist of a 3/8" or 1/2" mix in accordance with Section 710 to match the existing surface.

(D) Where the base course is to be placed with non-compactive equipment, it shall be immediately rolled with a pneumatic-tired roller.

(E) Pavement replacement over trenches where the pavement replacement width is 6 feet or more, all courses shall be placed with self-propelled spreading and compacting equipment. When the pavement replacement width is from 6 to 8 feet, self-propelled spreading and compacting equipment shall not be wider than 8 feet.

(F) Placement of the surface course is to be by means which will result in a surface flush with the existing pavement. The pavement replacement surface shall not vary more than 1/4 inch from the lower edge of a straightedge placed across the replacement pavement surface between edges of the existing matched surfaces. When the pavement replacement includes replacement of the roadway crown, the surface smoothness shall comply with requirements of Section 321.

(G) Pavement replacement extending to the edge of asphalt pavement not abutting concrete shall have a safety edge or thickened edge constructed per Detail 201 as deemed appropriate by the local jurisdiction.

For trench cuts, pavement widening, or other partial pavement installations greater than 300 feet in length the entire area shall be slurry seal coated in accordance with Section 332 or as otherwise specified. The seal coat shall extend from the edge of pavement or lip of gutter to the street centerline except that on residential streets less than 36 feet face to face of curb and where the pavement patch straddles the centerline, the entire width of street shall be seal coated.

In lieu of placing the seal coat as required previously, and with approval of the local jurisdiction, the Contractor may deposit with the Street Maintenance Department for credit, a negotiated agreed upon amount. The Street Maintenance Department will incorporate this work into their street maintenance program.

**336.2.4.2 Adjustments:** When new or existing manholes, valves, survey monuments, clean outs, etc. fall within the limits of the permanent pavement replacement as discussed in this Section, the Contractor shall be responsible for adjusting the various items to the new pavement surface. The Contractor shall coordinate with the Engineer and with representatives of the various utilities regarding the adjustment and inspection of the work. The Contractor shall be responsible for obtaining and complying with all specifications, special requirements, and details for the adjustment of utility company facilities. When adjusting the Agency's utilities, survey monuments, etc., the adjustment will comply with these specifications and details.

The work will be done in compliance with OSHA standards and regulations regarding confined space entry. The Contractor shall remove all material attached to the lids and/or covers including that of prior work. The method of removal shall be approved by the Engineer and/or the Utility Representative.

**336.3 TYPES AND LOCATIONS OF TRENCH SURFACE REPLACEMENT:**

Trench backfill shall be in place and compacted to the density required in Table 601-2 prior to the placement of the asphalt concrete structural section or other surfacing.

Laying a single course or the base course(s) of the asphalt concrete pavement replacement for trenches shall never be more than 1320 feet behind the ABC placement for the pavement replacement.

Type of surface replacement required for trenches shall be as noted on the plans or special provisions and construction shall be in accordance with Detail 200-1 and 200-2. If a trench repair type is not noted on the plans or specified in the special provisions, the following criteria will govern:

Type A trench repair will be used for all asphalt concrete paved streets where the excavation is essentially longitudinal or parallel to traffic. Full depth longitudinal joints shall not be located within forty-eight inches (48") of an asphalt pavement edge or within a lane wheel path. The lane wheel path for a traffic lane is the entire lane width except the area within one foot of a traffic lane line stripe and except the center two feet of the lane. The lane wheel path for a designated bike lane is the entire lane width except the area within six inches (6") of a bike lane edge stripe. When the surface match point is located within 48" of an asphalt

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pavement edge, all asphalt surfacing shall be removed to the asphalt edge, the replacement surfacing shall extend to the asphalt edge. The traffic lane wheel path restrictions for full depth longitudinal joints do not apply for offset joints that provide at least a six-inch horizontal offset between the surface course joint and the joint in the underlying asphalt layer. The depth of the asphalt surface course shall be equal to or greater than the minimum thickness recommended in Table 710-1.

T-Top trench repair will be used where the excavation is essentially transverse or not parallel to traffic, including trenches that go through an intersection.

Type B trench repair shall only be used when specified by the local jurisdiction.

Type D trench repair will be used to repair surfaces other than asphalt concrete or portland cement concrete pavement. The surface replacement shall be of a like type and depth as the existing material, compacted to the densities required in Section 601.

Where a longitudinal trench is partly in pavement, the pavement shall be replaced to a neat straight line located at the outer limits of the existing pavement.

Where asphalt pavement replacement extends to an uncurbed asphalt edge, the agency designated edge treatment shown in Detail 201 (Type A, Type B, or Safety Edge) shall be installed.

Where a trench is in a landscaped or graded area outside of pavement, no special surface treatment is required except as indicated by plans or specifications.

**336.4 MEASUREMENT:**

Measurement for surface replacement shall be by the square yard, based on actual field measurement of the area covered except as noted below.

(A) In computing pay quantities for surface replacement of Type B trench repair, the default pay width will be based on the dimension calculated from Table 601-1 for the "Maximum Width At Top Of Pipe Greater Than O.D. Of Barrel". The pay width will be adjusted to the minimum required field width when relocation of the pavement match point is due to the remnant requirement or when pavements less than 4" thick are required to be adjusted outside of a wheel path.

(B) In computing pay quantities for surface replacement of a T-Top or Type A trench repair, the default width will be based on the dimension calculated from Table 601-1 for the "Maximum Width At Top Of Pipe Greater Than O.D. Of Barrel" plus 24 inches. The pay width will be adjusted to the minimum required field width when relocation of the pavement match point is due to the remnant requirement or when pavements less than 4" thick are required to be adjusted outside of a wheel path. In all cases, the minimum pay width for T-Top or Type A surface replacement shall be 48 inches.

(C) In computing pay quantities of surface replacement for Type D trench repair, pay widths will be based on the dimension calculated from Table 601-1 for the "Maximum Width At Top Of Pipe Greater Than O.D. Of Barrel". In all cases, the minimum pay width for Type D surface replacement shall be 48 inches.

(D) Where a longitudinal trench is partly in asphalt pavement, pay quantities shall not exceed actual pavement replacement quantities. The measurement shall be the area as allowed for the respective Type A or Type B trench repair limited to that portion located within the existing pavement. The minimum 48 inch pay width for the Type A pavement replacement does not apply when the trench is partially in pavement.

(E) The length of pavement and surfacing replacement shall be measured through any manhole, valve box, or other structure constructed in the pipe line, and any pavement or surface replacement and/or seal treatment in excess of the trench repair width shall be considered and included in the bid item for such structure.

(F) Any pavement replacement in excess of the specified pay widths necessitated by the installation of valves, tapping sleeves and valves, valve by-passes, and concrete thrust blocks shall be included in the bid price for these items.

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(G) Measurement of pavement and surfacing replacement shall be made along the finished surface excluding any extra replacement required due to Contractor caused damage. The measured quantity shall be computed to the nearest square yard.

(H) No separate measurement or payment will be made for the required construction of a Detail 201 edge treatment.

**336.5 PAYMENT:**

Direct payment for pavement or other surface replacement will be made for replacement over all pipe trench cuts except as otherwise noted in the special provisions. Payment for surface replacement over other work shall be included in the cost of constructing that work.

Payment for temporary pavement replacement shall be included in the cost of the pipe.

Payment for pavement replacement shall include the replacement cost of any existing pavement markings that have been degraded, obscured, obliterated or removed.

When a Contractor has the option of jacking and/or boring or open cut construction, and elects to construct a pipeline by the jacking and/or boring method, the Contractor will be paid for the replacement of such items of work as pavement, curb and gutter, sidewalk, driveway, and alley entrances, as allowed for open cut construction.

**- End of Section -**

**321.10.3 Surface Testing:** If directed by the Engineer surface drainage test shall be performed. The completed surfacing shall be thoroughly compacted, smooth and true to grade and cross-section and free from ruts, humps, depressions or irregularities. An acceptable surface shall not vary more than 1/4 inch from the lower edge of a 12-foot straightedge when the straightedge is placed parallel to the centerline of the roadway. The straightedge shall be furnished by the contractor and shall be acceptable to the Engineer.

All streets shall be water tested for drainage in the presence of the Engineer or designated representative before final acceptance. Any areas not draining properly shall be corrected to the Engineer's satisfaction at the Contractor's expense. Water for this testing shall be provided and paid for by the Contractor.

When deviations in excess of the above tolerance are found, humps or depressions shall be corrected to meet the specified tolerance. ~~or~~ The defective pavement shall be cut out along neat straight lines or for multiple course pavements the surface course may be milled out, and the removed pavement replaced with fresh hot mixture and thoroughly compacted to conform with and bond to the surrounding area. Materials and work necessary to correct such deviations shall be at no additional cost to the Contracting Agency.

When pavement is cut out along neat straight lines, full depth longitudinal joints shall not be located within a lane wheel path or within forty-eight inches (48") of an asphalt pavement edge. Longitudinal joints shall comply with the restrictions for Type A Trench Repairs in Section 336.3.

**SECTION 601 TRENCH EXCAVATION, BACKFILLING AND COMPACTION**

Section 601.2.7 Last Revised 5/18/2015

**601.2.7 Pavement and Concrete Cutting and Removal:** Where trenchless methods are not used and trenches or other excavations lie within the portland cement concrete section of streets, alleys, driveways, or sidewalks, etc., such concrete shall be completely removed between the closest adjacent joints. sawcut to Removal methods shall produce neat, straight/vertical, true lines in such a manner that the remaining adjoining surface concrete will not be damaged. The minimum depth of cut shall be 1 ½ inches or 1/4 of the thickness, whichever is greater.

Sidewalk, curb, gutter, and other concrete flatwork shall have complete joint to joint replacement of all damaged sections. The construction replacing damaged concrete sections and joints shall be compliant with Section 340.

The existing joint system in portland cement concrete pavement (PCCP) shall be maintained. Reconstruction of PCCP panels and joints shall be in accordance with Section 324.

Initial Asphalt pavement removal shall be clean-cut to be the minimum width required for conduit installation and proper trench compaction. No ripping or rooting will be permitted outside the pavement cut limits of cuts. Surfacing materials removed shall be hauled from the job site immediately, and will not be permitted in the backfill.

Final pavement removal for pavement matching and surface replacement shall occur after the final backfill and the aggregate base material are in place and compacted. Pavement matching and final surface replacement shall be with approved equipment and by approved methods in accordance with the requirements of Section 336.

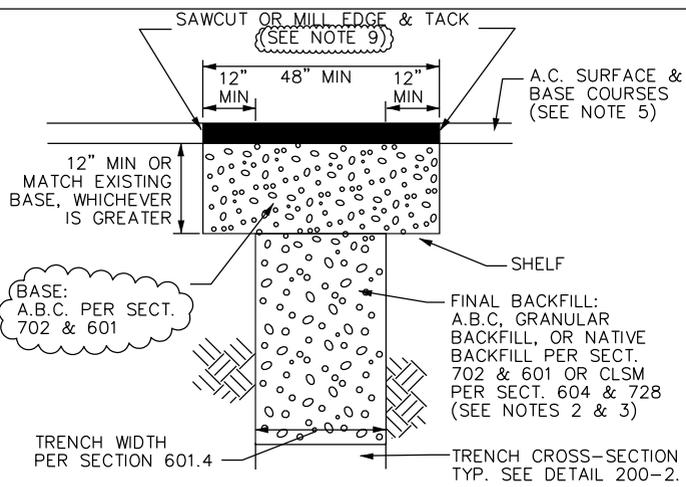
~~No ripping or rooting will be permitted outside limits of cuts. Surfacing materials removed shall be hauled from the job site immediately, and will not be permitted in the backfill.~~

Section 601.2.10 Last Revised 3/19/2015

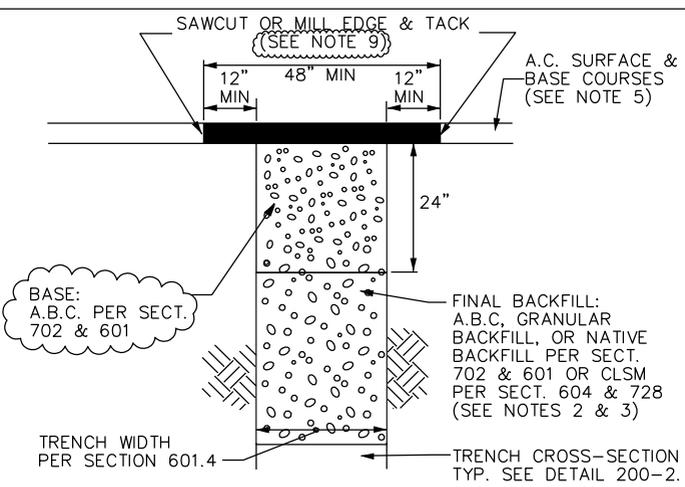
**601.2.10 Open Trench:** Except where otherwise noted in the special provisions, or approved in writing by the Engineer, the maximum length of open trench, where the construction is in any stage of completion (excavation, pipe laying or backfilling), shall not exceed 1320 feet in the aggregate at any one location.

Any excavated area shall be considered open trench until all ABC for pavement replacement has been placed and compacted. With the approval of the Engineer, pipe laying may be carried on at more than one location, the restrictions on open trench applying to each location. Trenches across streets shall be completely backfilled as soon as possible after pipe laying.

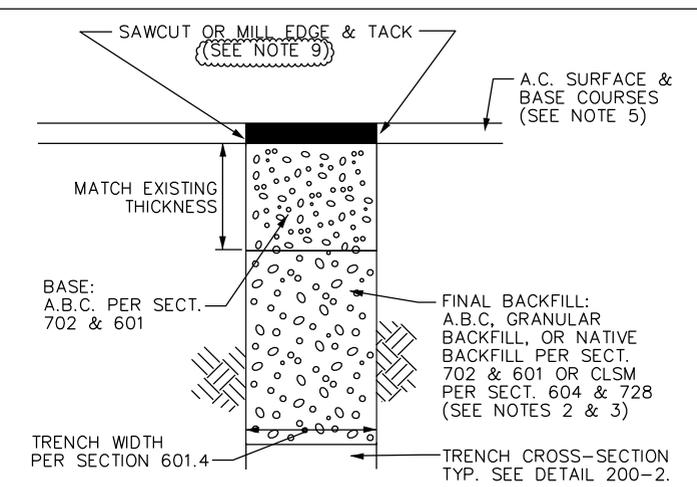
Substantial steel plates with adequate trench bracing shall be used to bridge across trenches at street crossings where trench backfill and temporary patches have not been completed during regular work hours. Steel plates shall be installed in accordance with Detail 211. Safe and convenient passage for pedestrians shall be provided. The Engineer may designate a passage to be provided at any point he deems necessary. Access to hospitals, fire stations and fire hydrants ~~must shall~~ be maintained at all times. Steel plates with adequate trench bracing shall be used to bridge across trenches as needed to provide driveway access to adjacent properties where trench backfill and temporary patches have not been completed during regular work hours.



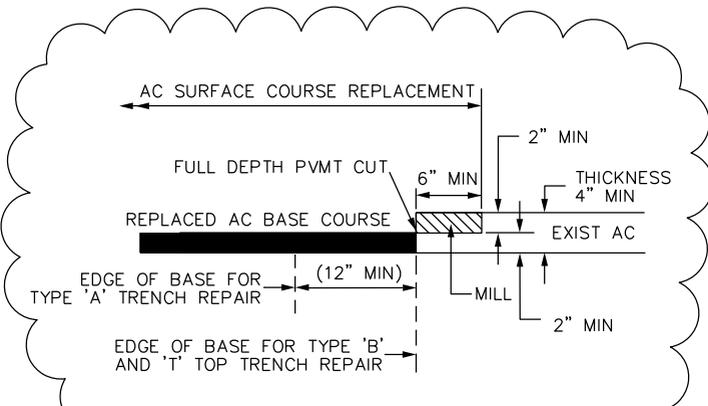
**"T TOP" TRENCH REPAIR**



**TYPE "A" TRENCH REPAIR**

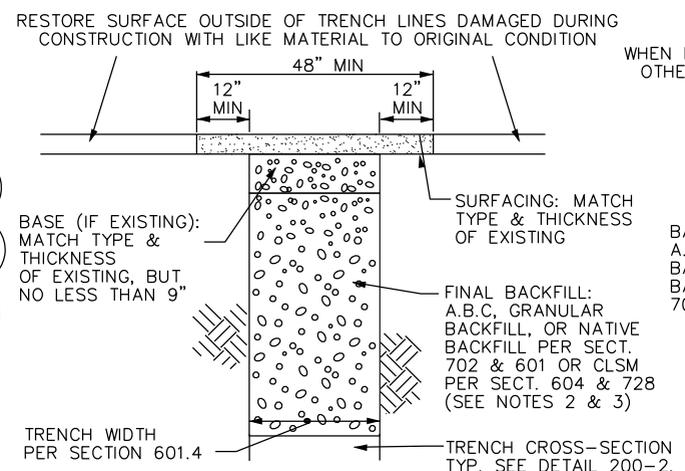


**TYPE "B" TRENCH REPAIR**



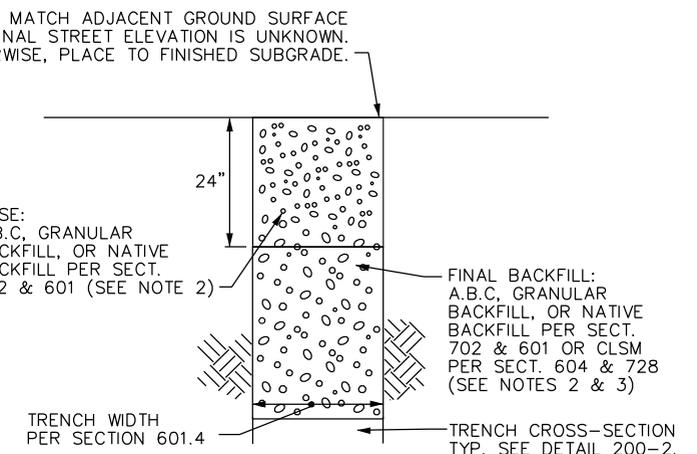
**OFFSET JOINT**

(FOR PAVEMENT ≥ 4" THICK)



**TYPE "D" TRENCH REPAIR**

(TRENCH NOT UNDER CONCRETE OR ASPHALT PAVEMENT)



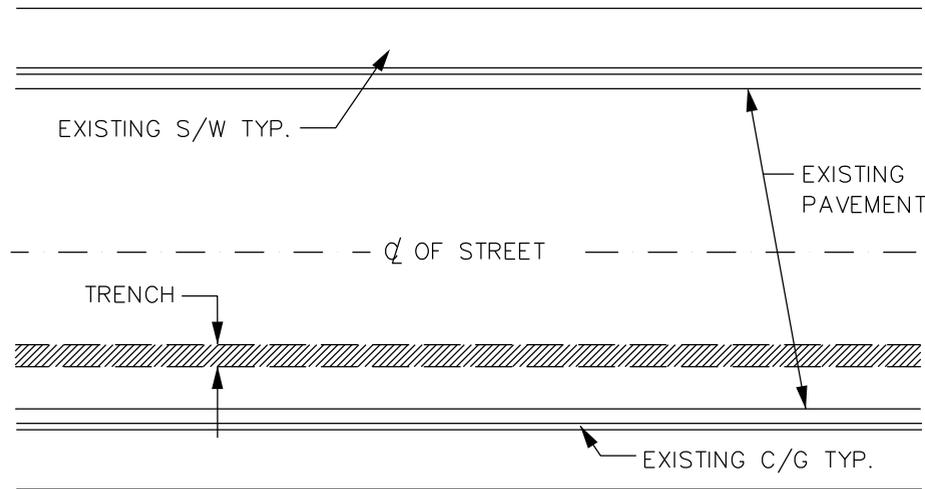
**TYPE "E" TRENCH REPAIR**

(TRENCH IN FUTURE ROADWAY PRISM OR ALLEY)

- NOTES:**
- PAVEMENT MATCHING AND SURFACE REPLACEMENT SHALL BE IN ACCORDANCE WITH SECTION 336.
  - MATERIAL FOR FINAL BACKFILL AND BASE (IF APPLICABLE) SHALL BE AS NOTED HEREIN UNLESS OTHERWISE SPECIFIED IN CONTRACT DOCUMENTS. CLSM SHALL BE 1/2-SACK OR 1-SACK PER SECTIONS 604 AND 728.
  - FINAL BACKFILL SHALL BE 1/2-SACK OR 1-SACK CLSM PER SECTIONS 604 AND 728 FOR TRENCH DEPTHS GREATER THAN 4 FEET UNLESS A SAFE (OHS COMPLIANT) WORKING SPACE AT LEAST 30" WIDE IS PROVIDED TO CONDUCT COMPACTION TESTING.
  - BASE, FINAL BACKFILL, AND PIPE EMBEDMENT ZONE COMPACTION SHALL BE IN ACCORDANCE WITH SECTION 601.
  - ASPHALT CONCRETE SURFACE AND BASE COURSES SHALL COMPLY WITH SECTION 336.2.4.1 UNLESS OTHERWISE SPECIFIED IN CONTRACT DOCUMENTS.
  - USE TYPE "A" FOR LONGITUDINAL TRENCH REPAIR AND USE "T-TOP" FOR TRANSVERSE TRENCH REPAIR (SEE DETAIL 200-2) UNLESS OTHERWISE SPECIFIED IN CONTRACT DOCUMENTS. TYPE "B" TRENCH REPAIR MAY BE USED FOR TRANSVERSE TRENCH REPAIR IF SPECIFIED BY THE AGENCY.
  - PROVIDE MINIMUM 12" WIDE SHELF AS SHOWN IN "T-TOP" TRENCH REPAIR AT ENDS OF TYPE "A" TRENCH REPAIR EXCEPT WHERE EDGE ABUTS EXISTING CONCRETE.
  - USE "T-TOP" PAVEMENT REPLACEMENT WHERE A TRENCH IS NOT PARALLEL TO A STREET OR GOES THROUGH AN INTERSECTION.
  - THE JOINT LOCATION OR JOINT CONFIGURATION MAY VARY FROM THAT SHOWN TO ELIMINATE REMNANTS, TO ELIMINATE FULL DEPTH SAWCUT JOINTS FROM BEING LOCATED WITHIN A WHEEL PATH AS REQUIRED BY SECTION 336, OR WHEN AN OFFSET JOINT IS CONSTRUCTED.
  - SEE DETAIL 200-2 FOR REMNANT PAVEMENT REMOVAL REQUIREMENTS.
  - EXPOSED COPPER OR POLYETHYLENE WATER PIPE UP TO 2" IN DIAMETER IN TRENCHES TO BE BACKFILLED WITH CLSM SHALL BE WRAPPED WITH MINIMUM 3/4" THICK PREFORMED PIPE-COVERING FOAM INSULATION BEFORE PLACING CLSM.

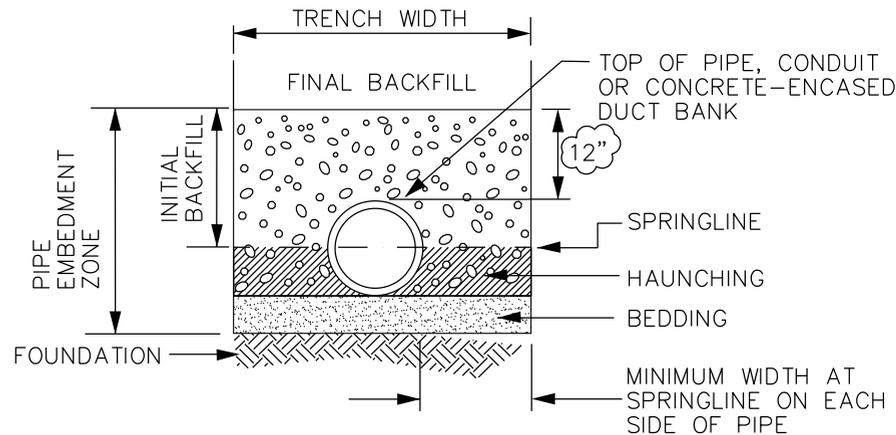
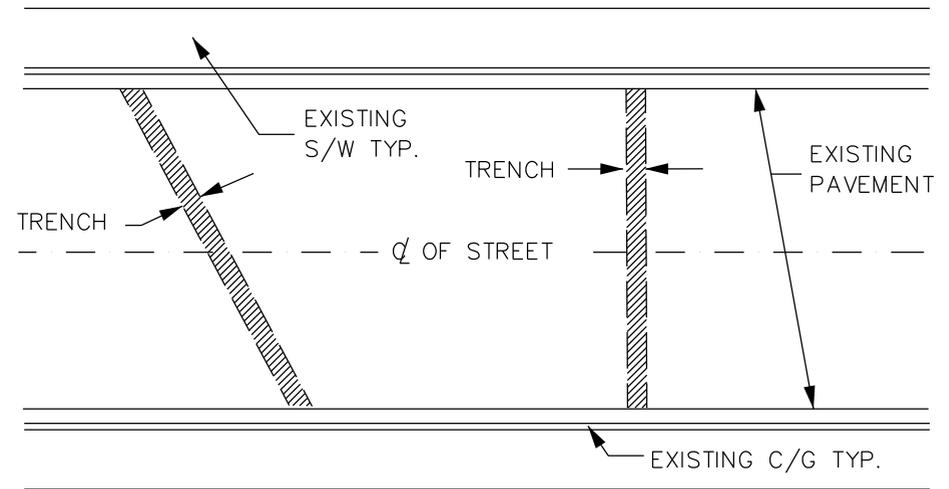
## LONGITUDINAL TRENCH

(TRENCH IN PAVEMENT PARALLEL TO TRAFFIC)

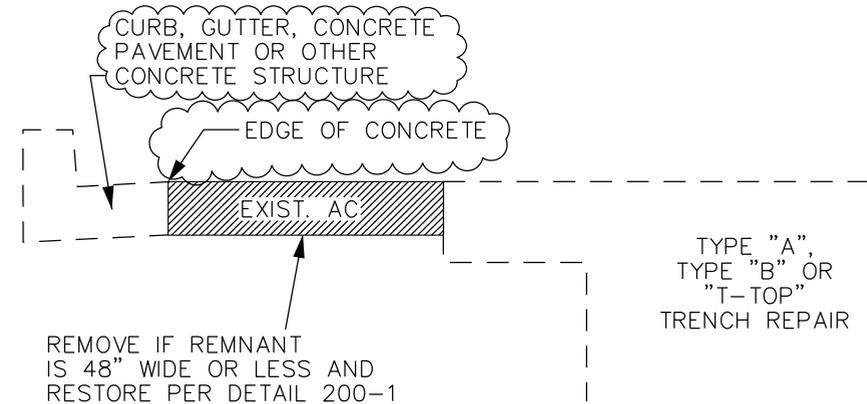


## TRANSVERSE TRENCH

(TRENCH IN PAVEMENT NOT PARALLEL TO TRAFFIC)



**TRENCH CROSS-SECTION DETAIL**



**REMNANT PAVEMENT REMOVAL**

### NOTES:

1. SEE SECTION 601 FOR TRENCH EXCAVATION, BACKFILLING AND COMPACTION REQUIREMENTS.
2. SEE DETAIL 200-1 FOR DETAILED TRENCH REPAIR REQUIREMENTS FOR TRENCH TYPES NOTED HEREIN.
3. SEE DETAIL 211 FOR REQUIREMENTS REGARDING THE USE OF PLATING TRANSVERSE TRENCHES. USE OF STEEL PLATES SHALL NOT EXCEED 72 HOURS AFTER COMPLETION OF BACKFILL AND PRIOR TO FINAL PATCHING.

DETAIL NO.  
200-2



STANDARD DETAIL  
ENGLISH

**TRENCH BACKFILL AND  
SURFACE REPLACEMENT**

PROPOSED  
01-01-2015

DETAIL NO.  
200-2



MARICOPA COUNTY  
*Department of Transportation*

MEMORANDUM

**Date:** January 28, 2015 Revised 5/21/2015  
**To:** MAG Specifications and Details Committee  
**From:** Robert Herz, MCDOT Representative  
**Subject:** Proposed Revision to Section 601.4.5 Final Backfill and Section 601.4.8 Granular Material and Native Backfill Material **Case 15-03**

**PURPOSE:** Revise trench final backfill placement requirement of loose non-compacted material from 2 feet to layers not exceeding twelve inches in depth and require Agency approval for depths greater than 12". Add CLSM and granular material to the listing of acceptable materials for final backfill as presently shown on Detail 200-1. Add to Section 601.4.8 identification of the testing procedures required to determine the percent passing the 200 sieve.

**REVISIONS:**

**601.4.5 Final Backfill:** Material placed above the initial backfill to the top of the trench or to the bottom of the road base material. Final backfill shall be placed in horizontal layers not more than twelve inches in depth before compaction. With Agency approval an increase in the loose non-compacted lift depth may be obtained for a project based on specific equipment, methods, and soil conditions. For approval of an increase of the non-compacted lift depth the Contractor shall demonstrate to the satisfaction of the Agency that the required density will be obtained using the Contractor identified equipment and methods. ~~lifts that shall not exceed 2 feet and~~ The non-compacted lift height shall not be more than can be compacted to the required density with the equipment and methods being used.

Final backfill shall be CLSM per Section 604, ABC per Section 702, granular material or ~~sound earthen native backfill material per Section 601.4.8. with no piece larger than 4 inches and be free from broken concrete, broken pavement, wood or other deleterious material.~~

Backfill under street pavement shall be constructed per Detail 200-1 with the type of trench and surface replacement as noted on the plans or in the special provisions.

Unless otherwise noted, backfill under single curb, curb and gutter, attached sidewalk, driveways, valley gutters, etc. shall be the same as the adjacent street pavement.

**601.4.8 Granular Material and Native Backfill Material:** For purposes of this specification, granular material is material for which the sum of the plasticity index and the percent of the material passing a No. 200 sieve does not exceed 23. The plasticity index shall be tested in accordance with AASHTO T-146 Method A (Wet Preparation), T-89 and T-90. The percent of the material passing a No. 200 sieve shall be tested in accordance with ASTM C136 and ASTM C117.

Native material used for backfill shall be sound earthen material free from broken concrete, broken pavement, wood or other deleterious material with no piece larger than 4 inches.



**Chandler • Arizona**  
*Where Values Make The Difference*

**MEMORANDUM**

**Case 15-07**

**DATE:** March 4th, 2015

**TO:** MAG Specifications and Details Committee Members

**FROM:** Warren White, City of Chandler Representative

**SUBJECT:** Potential Case - Revisions to Concrete Paver Stds for Non-Traveled Surface

Potential Revisions for Discussion:

1. Revision to C-225 Concrete Paver Detail to depict pavers/decorative concrete on ABC for raised medians or other non-traveled areas?
2. Revision to MAG Section 342 Decorative Pavement Concrete Paving Stone or Brick, Section 342.3 Construction Standards?

**342.3.2 Aggregate Base Course:** When aggregate base course is specified, the aggregate base course shall be constructed true to grades and lines shown on the plans and compacted to a minimum dry density of 100% per Section 301 with the surface of the aggregate base course not varying by more than +1/8-inch in 10-feet.

3. See attached COP Section 342 supplement and City of Glendale Paving Block for Medians Dtl.

## SECTION 342

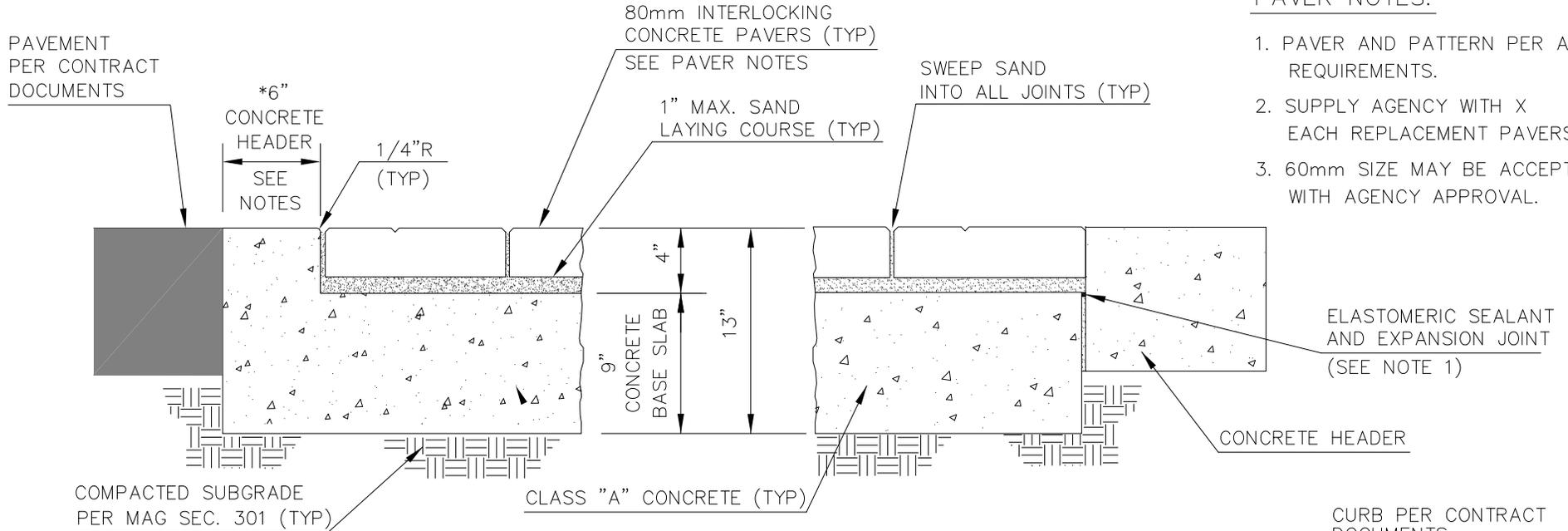
### DECORATIVE PAVEMENT CONCRETE PAVING STONE OR BRICK

**Subsection 342.3.2 Aggregate Base Course: Delete this subsection in its entirety and replace with the following:**

The base course for decorative pavement shall consist of CLSM of a thickness specified in the plans or special provisions. 1-Sack CLSM shall be installed over subgrade soil compacted to a minimum of 95% density. The surface elevation of the CLSM shall be set to bring the 1-inch sand laying course, plus the thickness of the paving stones or bricks to the desired finished elevation of decorative pavement. The surface of the 1-Sack CLSM shall not vary more than +1/8 inch in 10 feet.

**Subsection 342.4 MEASUREMENT AND PAYMENT: Delete this subsection in its entirety and replace with the following:**

Measurement for deco pavement shall be by the square foot. Payment for deco pavement shall be made at the unit bid price per square foot including subgrade preparation, 1-Sack CLSM, and sand base. This payment shall be full compensation for all labor, materials, tools and equipment required to complete the work.



PAVER NOTES:

1. PAVER AND PATTERN PER AGENCY REQUIREMENTS.
2. SUPPLY AGENCY WITH X EACH REPLACEMENT PAVERS.
3. 60mm SIZE MAY BE ACCEPTED WITH AGENCY APPROVAL.

TYPICAL SECTION  
(AGAINST PAVEMENT)

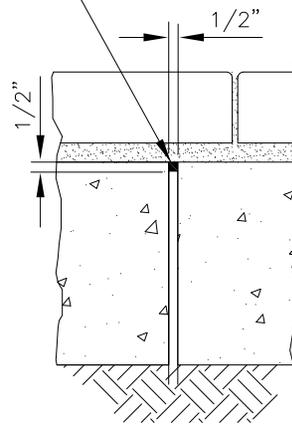
TYPICAL AT END OR ALTERNATE SECTION  
(AGAINST CONCRETE)

CURB PER CONTRACT DOCUMENTS - VERTICAL CURB & GUTTER PER MAG DTL 220-1, TYPE A OR SINGLE CURB PER MAG DETAIL 222, TYPE 'A'

NOTES:

1. 1/2" EXPANSION JOINT, ASTM D-1751 PER MAG SEC. 729, EVERY 50'. ELASTOMERIC SEALANT PER MAG SEC. 342. SEE DETAIL.
2. CONTRACTION JOINTS PER MAG SEC. 342, EVERY 10'.
3. MATERIALS AND CONSTRUCTION PER MAG SEC. 342.
4. MAXIMUM ALLOWABLE JOINT GAP IS 1/2".
5. HEADER SHALL BE 12" AT CROSSWALKS.

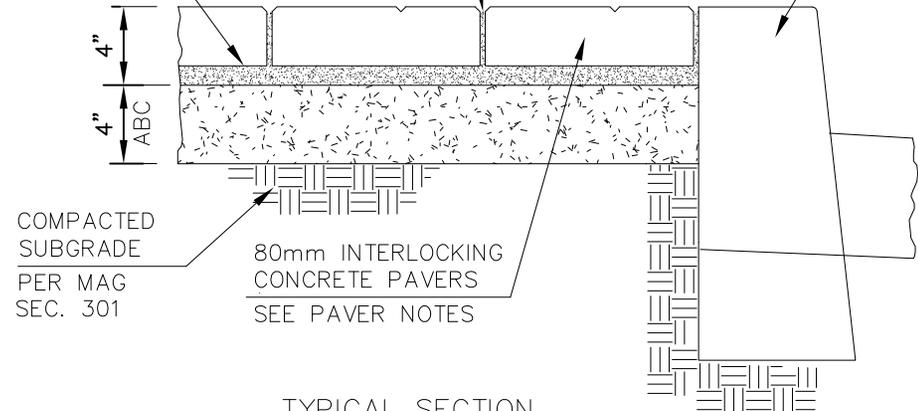
ELASTOMERIC SEALANT AND EXPANSION JOINT  
(SEE NOTE 1)



EXPANSION JOINT  
DETAIL

1" MAX. SAND LAYING COURSE

SWEEP SAND INTO ALL JOINTS



TYPICAL SECTION  
(RAISED MEDIAN)



**MARICOPA COUNTY**  
*Department of Transportation*

**MEMORANDUM**

**Date:** March 26, 2015  
**To:** MAG Specifications and Details Committee  
**From:** Robert Herz, MCDOT Representative  
**Subject:** Revision to clarify Table 710-4

**Case 15-08**

**PURPOSE:** Eliminate misinterpretation of Criteria 8 in table 710-4. Some readers believe that 3/8 inch mix and 1/2 inch mix are required to be designed for Low Traffic only and that 3/4 inch mix is required to be designed for High Traffic only.

**REVISIONS:** Relocate item 8 (Number of Gyration) as a new table in Section 710.3.2.2 prior to the existing Table 710-4. This requires renumbering Table 710-4.

**710.3.2.2 Gyrotory Mix Design:** Gyrotory Mix Designs shall be performed in accordance with the requirements of latest edition of the Asphalt Institute’s SP-2 manual. Mix design laboratory compacted specimens shall be prepared using a gyrotory compactor in accordance with AASHTO T-312.

The mix design shall be formulated in a manner described for volumetric mix designs in the current edition of the Asphalt Institute Manual SP-2, except the number of trial blend gradations necessary will be determined by the mix design laboratory. Duplicate gyrotory samples shall be prepared at a minimum of four (4) binder contents to select the recommended binder content. The gyrotory specimens shall be compacted to 160 gyrations. Volumetric data for the design number of gyrations,  $N_{des}$ , and the initial number of gyrations,  $N_{ini}$ , are then back calculated based on the bulk specific gravity,  $G_{mb}$ , of the  $N_{max}$  specimens and the height data generated during the compaction process of those same specimens.

<b>TABLE 710-4</b>		
<b>Number of Gyration</b>		
	<b>Low Traffic</b>	<b>High Traffic</b>
$N_{ini}$	<u>7</u>	<u>8</u>
$N_{des}$	<u>75</u>	<u>100</u>
$N_{max}$	<u>115</u>	<u>160</u>

For Low traffic designs, volumetric data for 115 gyrations,  $N_{max}$  for Low Traffic designs, is also back calculated from the specimens compacted to 160 gyrations.

The corrected density of the specimens shall be less than 89.0 percent of maximum theoretical density at  $N_{ini}$ . The corrected density of the specimens shall be less than 98.0 percent of maximum theoretical density at  $N_{max}$ . The Gyrotory mix shall comply with the criteria in Table 710-45.

TABLE 710-45				
GYRATORY MIX DESIGN CRITERIA				
Criteria	Requirements			Designated Test
	3/8" Mix	1/2" Mix	3/4" Mix	Method
1. Voids in Mineral Aggregate: %, Min.	15.0	14.0	13.0	AI SP-2
2. Effective Voids: %, Range	4.0 ± 0.2	4.0 ± 0.2	4.0 ± 0.2	AI SP-2
3. Absorbed Asphalt: %, Range *	0 - 1.0	0 - 1.0	0 - 1.0	AI SP-2
4. Dust to Eff. Asphalt Ratio, Range **	0.6 - 1.4	0.6 - 1.4	0.6 - 1.4	AI SP-2
5. Tensile Strength Ratio: %, Min.	75	75	75	ASTM D 4867
6. Dry Tensile Strength: psi, Min.	75	75	75	ASTM D 4867
7. Mineral Aggregate Grading Limits				AASHTO T-27
	Percent Passing with Admix			
Sieve Size	3/8 inch Mix	1/2 inch Mix	3/4 inch Mix	
1 inch			100	
3/4 inch		100	90-100	
1/2 inch	100	90-100	43-89	
3/8 inch	90-100	53-89	-	
No. 8	32-47	29-40	24-36	
No. 40	2-24	3-20	3-18	
No. 200	2.0-8.0	2.0-7.5	2.0-6.5	
<del>8. Number of Gyration</del>	<del>Low Traffic</del>		<del>High Traffic</del>	
<del>N<sub>ini</sub></del>	<del>7</del>		<del>8</del>	
<del>N<sub>des</sub></del>	<del>75</del>		<del>100</del>	
<del>N<sub>max</sub></del>	<del>115</del>		<del>160</del>	

\* Unless otherwise approved by the Engineer.

\*\* The ratio of the mix design composite gradation target for the No. 200 sieve, including admixture, to the effective asphalt content shall be within the indicated range.

# Water/Sewer Working Group Meeting

Meeting Notes  
May 21, 2015

## Opening:

A meeting of the Specifications and Details Water/Sewer Working Group was called to order by Jim Badowich on May 21, 2015, at 1:35 p.m. in the MAG Cottonwood Room.

## 1. Introductions/Attendance

Jim Badowich (Avondale), Jami Erickson (Phoenix), Will Fielder (SW Gas), Bob Herz (Maricopa County), Matt Ligouri (SW Gas), Craig Sharp (Buckeye), Gordon Tyus (MAG), Arvid Veidmark (SSC Boring), Dan Weakland (Team Fishel).

## 2. Polymer Manhole System

Jim Badowich said he spoke to Mike Malina of Old Castle about methods of polymer and concrete manhole. He was glad that manufacturers are looking at ways to improve their product to reduce degradation due to cases. Bob said he was looking at information on Jensen precast systems. Craig Sharp said they were a good system, but still had to seal the joints. Mr. Badowich said agencies are testing polymer manhole systems and if they work well, specifications for them could be added to MAG later.

## 3. Horizontal Drilling Directional Drilling (New Section 608)

Arvid Veidmark summarized the comments he received from utility companies including Century Link, Cox, and SRP. Representatives from Southwest Gas and Team Fischel, a contractor for Century Link were present to provide comments on the proposed specification. Mr. Veidmark said one of the main concerns of the dry utility companies were the extra requirements for medium and large projects. He suggested that changing the range of the small classification up to 6000 in-ft would be more realistic for the types of HDD projects now typically done. He also thought it may make sense to differentiate between dry and wet utilities for some of the requirements. He said the typical drilling rigs used today can core 750' of rod and can pull a 6" sleeve. Jim Badowich said Avondale had a problem with heaving with a 4x4", 500 foot bore. Mr. Veidmark calculated the example and determined that it would be considered a medium sized bore subject to additional requirements. Members also had issues with the wording of the "site plan" section and the project plans. Jami Ericson recommended adding a section on project plans and clarifying the site plan section. Mr. Badowich also thought the schedule should be provided to the agency, he also wanted to make sure they stayed within the project plan limits. Southwest Gas representatives were worried that they would be required to provide this information before getting a permit, which they would not be able to do since many items are determined by the contractor prior to construction. There was discussion on how to clarify who was responsible for the pre-construction, construction and post construction phases.

Members also discussed the pros and cons of before and after surveys. Jim Badowich wanted to know how a contractor could prove that a problem existed prior to construction without a survey. Mr. Weakland of Fishel said they take video of the site beforehand, and if there is a problem they will correct it. He thought that a survey would greatly add the costs and for the types of jobs they typically do, and they have not had problems in current practice. This is one of the reasons the utility companies wanted to raise the small bore size classification up to 6000

in-ft. Some other recommendations for modifying the draft spec included combining Equipment and Site Plan as well as the As-Built and Driller's log. There was also agreement to use the term "hydro fractures" rather than "frac-outs." Arvid Veidmark said he would take all the comments, revise the draft and send it out to everyone for comments. He hoped to have it ready to present as a case at the next committee meeting.

#### **4. Case 15-03 Trench Compaction Requirements**

Bob Herz provided an update to the case that removed references to specific equipment and made the maximum allowable lifts 12" unless the contractor could demonstrate their equipment could get compaction with larger lifts. He said he intended to discuss the revisions at the next asphalt working group meeting as well.

#### **5. Polymer Concrete Boxes**

Jim Badowich discussed the need to include polymer concrete boxes, and update Detail 230. Jami Erickson said Phoenix is using the polymer concrete lids with the regular MAG boxes. Mr. Badowich said Armorock is now making plastic boxes as well. Mr. Veidmark asked how they handle sun exposure. Mr. Badowich would like to look at this issue at future meetings.

#### **6. Adjournment**

The meeting was adjourned at 3:40 p.m.